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# Anatomy By Dissection

## The dog as the basic animal

*Stanley King, '49\**

NOT too many years ago veterinary students studied anatomy looking forward to the care of large animals, and in particular the horse, as the main source of future income. Modern embalming techniques were not applied to animals, and, of necessity, their laboratory work was done in cold dissecting rooms during the winter months.

Since then, in addition to the dissection of embalmed cadavers, the field of anatomy has been broadened to include histology, embryology, cytology, hematology, neurology, and endocrinology. These phases of anatomy have given opportunities for new advancements through research.

### Fewer Lectures

The tendency has been to reduce the hours devoted to the study of gross anatomy to allow more time for other subjects as well as for other phases of anatomy. It is desirable then to eliminate unnecessary time-consuming material. The courses in gross anatomy at Iowa State College have thus been arranged with the following views in mind. It is felt that material given in scheduled classroom lectures often does not correspond with the laboratory work. Much of this lecture material can be obtained from text books or can better be learned from dissections. Therefore, the student should devote most of his time to dissection. However, laboratory work should be supplemented. Lectures, short or long, as the need dictates, may be given as they fit

into the laboratory procedure. Demonstrations, movies, x-rays, and charts are important supplements. A complete and not too detailed dissection guide will direct the student to dissection technique, observation of structure, and textbook reference material. Drawings of dissections, which need not be artistic, but which show structural relationship can be profitably made.

By his dissection the student will actually see the form and structure of the animal and should associate morphology with the physiological aspects. He should be encouraged to ask himself questions like these: What is the structure? Why is it so named? What is its shape and how does its structure justify its function? He should attempt to apply the knowledge gained from the cadaver to the living animal. This can be accomplished by having live animals available on which deeper structures can be located by external visible landmarks.

### Practical Aspects

Emphasis should be placed on practical considerations. Things of major importance should be learned well. Detail is not long remembered. The learning of exact origins and insertions of muscles and the minute terminations of blood vessels and nerves makes gross anatomy a subject difficult to learn and easily forgotten. Terminology should be associated with meaning and word analysis.

Since form and structure are the most fundamental aspects in medical educa-

\* Author acknowledges valuable assistance of Dr. L. E. St. Clair.

tion, it is felt that anatomy should be studied during the first year. All phases of anatomy should be thoroughly coordinated as one will help to explain the other. A sound foundation must be laid upon which to apply subsequent courses in the curriculum. For this reason associated anatomical subjects should be under the jurisdiction of a single department.

At Iowa State College the dog is used as the basic dissection animal. All of the students are dissecting the same portions of the body at the same time, and all complete the dissection by the end of the first quarter. This aids in coordinating the teaching of gross anatomy with that of histology and embryology.

### Horse

When the horse was used as the basic animal, it was much later before all had finished studying the entire horse since it was customarily done in three sections. It is much easier for students with little previous knowledge of gross anatomy to study the dog than a large animal. Larger



*Photo by F. K. Ramsey*

### View of dissection in the Anatomy Laboratory

animals, too, are harder to handle and to keep in condition for good dissection. In the dog structures can be kept intact long after they are first observed. Improved methods of embalming with fluids other than formalin keep canine cadavers in good condition for the entire quarter.

The horse is dissected during the second quarter. Students by then have a good basic foundation and can dissect rapidly and efficiently. Two groups work on each animal. The diaphragm is assigned

as the division line, and at mid-term the two groups rotate positions on a new horse. Particular emphasis is placed on practical considerations such as the limbs. Since the economic value of the horse (except the light horse) is declining and since all animals are fundamentally alike, further reductions in time spent on the horse can be anticipated.

### Other Animals

All of the other economically important domestic animals are dissected during the third quarter with emphasis being placed on their phylogenetic association. Their embryological similarities and differences are pointed out. The fundamental similarity of all animals is a point that is stressed.

During each dissection all of the body systems are studied simultaneously and in relation to each other. The bones are studied with the soft structures. Topographical and regional anatomy are included. Thus, the student has on the completion of his first year, an overall picture of body structure. He realizes the fundamental principles of body makeup and the significance of each part with its relationship to the other parts. He has a good basic knowledge of body structure and not merely a conglomeration of unassociated detail.

It is suggested that a course in applied anatomy taught some time during the clinical years would be very beneficial. Special emphasis could be placed on special structures and surgical fields of various animals.

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Paeans of praise for caudal (epidural) anesthesia are now rising from the medical profession. The doctors have just discovered it! They have not yet learned that the veterinary profession has employed caudal anesthesia routinely for 18 years. So far, the medical profession knows of its value only in parturition but, given time, its members will learn, as veterinarians have long known, that it is useful in a wide variety of surgical operations.